TUBERCULOSIS OF THE TESTICLE.

OBSERVATIONS UPON 100 PATIENTS.

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OF NEW YORK.

THE following observations are based upon the histories of 100 patients suffering from tuberculosis of the testicle, collected from the case reports of our office (including cases observed by Drs. Van Buren, Keyes, Sr., and Chetwood). Fifty-three of these patients were observed after involvement of the second testicle: and my material, therefore, consists of 100 patients bearing 153 tubercular testicles.

Predisposing Causes.—Family tuberculosis was confessed by 27 patients, denied by 14. It is surely more common than these figures would indicate; yet, as a diagnostic point, very little reliance can be placed upon it: for certain pseudo-tubercular, chronic, gonorrhœal inflammations of the epididymis, closely resembling tuberculosis often occur in persons with tubercular antecedents.

The influence of race and of occupation I can not state.

Age at Onset.—The following table shows the age at which the tuberculosis localized itself in the testicle, as compared with the age at which tuberculosis was first noted.

	Tuberculosis began.	Testis began.
In "youth"	5	–
At 9 years	1	1
At 14 years	1	1
Between 15 and 19 years	9	8
Between 20 and 24 years	17	14
Between 25 and 29 years	24	25
Between 30 and 34 years	20	16
Between 35 and 39 years	4	10
Between 40 and 44 years	7	9
Between 45 and 49 years	7	9
Between 50 and 54 years	1	0
Between 55 and 58 years	2	3
Totals	98	96

In 71 per cent. tuberculosis was first observed between the ages of fifteen and thirty-four, while in 65 per cent. the testis was first attacked between these ages. Inasmuch as it is impossible to regard tuberculosis of the testicle as a separate and distinct lesion apart from tuberculosis elsewhere in the body, and since, as we shall see, the disease may relapse even after years of apparent quiescence, flitting between bone and lung and urinary tract, the date of onset of the tuberculosis is more important than that of its localization in the testis.

Associated Tubercular Lesions.—In 49 cases there was no evidence of any previous tuberculosis when the testis first enlarged; while in 36 cases there were more or less ancient foci of the disease elsewhere in the body.

Tuberculosis of the lung preceded invasion of the testicle 15 times—three years, twelve years (2 cases); many years (2 cases).* Bone or joint tuberculosis preceded eight times—One, two, twelve, many years (2 cases).* Inguinal adenitis preceded twice. Fistula in ano preceded twice. Renal tuberculosis preceded eleven times; prostatic or vesical tuberculosis thirteen times.

Many of these patients showed several localizations of tuberculosis before it attacked the testicle. For example, in one the wrist, ribs, sternum and bladder were invaded in succession, and then the testicle; in another there had been glands in the neck and ischio-rectal abscess; in another Pott's disease and tuberculosis of the prostate; in another phthisis and tubercular kidney. But most important of all is the fact that in no case have I been able to satisfy myself that the tesicle was the only organ involved in the tubercular process. Careful examination has always shown one of three conditions—tubercular bacilli in the urine, indurations about the prostate and vesicles, or a distinct haze in the urine due to prostatic catarrh. In this last class of cases the prostatic secretion is always purulent.

I recognize the possibility of primary tuberculosis of the testis, though I have not seen it. I am sure that in

* In the others the interval was brief.

certain of my cases tuberculosis of the testicle has been the only lesion of any moment in a given patient. Yet I am equally sure that in every case I have carefully examined there has been some congestion of prostate or vesicles, or both, at the time of examination; and I am inclined to believe that this congestion is always tubercular. Hence I believe that the tubercular testis is always an index of general tuberculosis of the genital organs.

A very striking confirmation of this fact is that only one of these patients was alledged to have begotten children after involvement of one testicle. I do not know that they were all sterile. But I was surprised, in collecting these cases, to find how many of them, being married, had ceased to beget children a year or two before invasion of the first testicle.

This condition has nothing to do with sexual potency; for only five complained of impotence, though doubtless may others had, at least, a relative decrease in potency.

But it would be very interesting to know whether patients with tuberculosis of only one testis have azoospermia. I have examined but one and in that case could find no spermatozoa in his semen.

Let me, therefore, present as a matter for future research, the examination of the seminal fluid of every case of unilateral, testicular tuberculosis.

But one patient is reported to have begotten children:

The patient came to my father in 1888 with a history of spontaneous epididymitis on both sides. Examination revealed suppuration in both epididymes. The condition of the internal genitals is not noted. He was a casual youth, twenty-one years of age; he visited the office only twice or thrice, and then drifted away.

Twelve years later, in 1900, a gentleman called, who stated that he was the father-in-law of this young man; that the young gentleman was very wild and had separated from his wife whom he had married within a year of his visit to us; but that before the separation she had two children. "Honi soit qui mal y pense!"

Exciting Cause.—One can not but feel that the onset of tuberculosis in an organ so exposed to sexual and traumatic violence as the testicle must often be occasioned by some such agency. Indeed, it is currently believed that tuberculosis of the testicle often follows upon gonorrhœa. Yet in only 11 of my cases was the patient known to have gonorrhœa, either acute or chronic, at the time of onset; while 19 denied ever having had this disease. Six alledged that the testicle had first swollen after an injury, and, of the 4 cases with quiescent testicular tuberculosis whom I saw, through attacks of gonorrhœa, 2 had acute testicular exacerbations, and 2 did not.

I have not, by the way, seen any evidence of tuberculosis inoculation by coitus.

The effect of sexual excess upon the lesion I have no means of judging; though I have seen one case of chronic, unilateral testicular tuberculosis arise *after* the death of his wife in a man who asserted that, during ten years of married life, he had practiced sexual intercourse on an average of once in every 24 hours.

Distribution of Lesions.—The lesion in the testicle may be but an incident in a general tuberculosis. Indeed, of the 24 patients already mentioned, who had lesions in lung, bone, etc., before the genitals were attacked, 4 continued to develop lesions outside the genito-urinary tract thereafter, and were joined by 7 more; making 31 cases in which the genito-urinary tuberculosis was but a part of a more or less disseminated and consecutive invasion of different organs.

Of these subsequent lesions, 6 were in the lung—shortly (twice), four, six, six, and ten years after the invasion of the testicle); 4 were in bones, joints, or tendon-sheaths (intervals of one, two, five, and seven years); one in the meninges (6 years); one in the groin glands (3 years); one in the colon (one year); while a case of diabetes after ten years was doubtless due to pancreatic tuberculosis.

But, in contrast to these 31 cases of truly generalized tuberculosis, there are 26 cases followed at least one year, in which the active tuberculosis was confined entirely to the

testicle; and half of these were followed less than four years. Thirteen cases of isolated testicular tuberculosis persisted respectively for four (3 cases), six, seven, (2 cases), eight (2 cases), nine, ten, twelve, fourteen and twenty-five years. In these cases there was never even any grave involvement of the internal genital organs.*

Side First Affected.—In 58 cases the side first affected was noted, and of these 27 began in the right testicle, 31 in the left.

There is a general impression, which I myself have harbored, that genito-urinary tuberculosis often clings to one side of the body. I doubt whether this is as often the case as we have supposed, for the opposite testicle is often promptly affected. I find, moreover, that in the 7 cases of general genito-urinary tuberculosis in which the onset of the disease in testicle and kidney is accurately reported, 4 were primarily unilateral; that is to say, the first kidney affected was on the same side as the first testicle affected; while 3 were not.

Site of the First Inflammation.—I have never seen a case of primary tubercular orchitis. The primary focus in my cases has always been the epididymis. This is the rule, though apparent exceptions are occasionally reported. But I think there is a general impression that gonorrhœal epididymitis usually begins in the globus minor, while tubercular epididymitis usually begins in the globus major. In only 25 cases was I able to obtain information upon this point; yet in 19 of them the first nodule appeared in the tail of the epididymis, leaving only 6 in which it began in the head. It would be dangerous, therefore, to insist on the diagnostic importance of the site of the first lesion.

Of associated lesions, besides those already mentioned, I may state that abscess of the vas is recorded 11 times; hydrocele 30 times. Yet in the cases that come to operation, we

* Thirty-five remained purely genital one year or more. Two of these were followed four years, 1 five, 1 eight, 1 nine, 1 eleven, and 1 thirteen years (besides those noted in the text as purely testicular). Fifteen (exclusive of the above mentioned) remained urogenital one year or more. Of these 2 were followed four years, 1 five, 1 seven, 2 eight, 1 ten, 1 sixteen, and 1 eighteen years.

practically always find hydrocele, or else adhesions in the tunica vaginalis, showing that it has been inflamed; and so common is tuberculosis of the vas that it is scarcely ever safe to bury the end of the divided vas without providing for drainage from it.

Recognizing how irregular tuberculosis may leap from one organ to another we can make no attempt to arrange the confused succession of lesions presented by our patients.

Theoretically we might divide them into two classes: (1) those in which the testicular lesion is the chief active tubercular lesion in the body (26 cases), and (2), those in which the tubercular lesion is only a part—perhaps a relatively unimportant part—of genito-urinary (24 cases) or general (31 cases) tuberculosis; but no patient remains hard and fast in either class. The clinical picture varies as one or another lesion rises into prominence. One may follow clinically, however, and with some degree of order the course of the lesion in the testicle itself (where it may be acute or chronic, suppurating or quiescent) and in its fellow.

Onset.—The onset was acute in 34 cases, chronic in 34. I need scarcely describe the difference between the two. The chronic lesion consists of a slightly sensitive nodule in the epididymis, while the acute epididymo-orchitis causes intense congestion and œdema, and is associated with fever and pain. In one case the process was so virulent as to simulate strangulation of the testicle; in many others it resembled acute gonorrhœal epididymitis.

This acute onset, as well as the acute exacerbations during the course of the disease are probably due to mixed infection. Caseation and fistula may, however, occur without any mixed infection.

Such breaking down, whether acute or chronic, simple or tubercular, occurred in at least 76 of the 152 testicles, probably in a great many more. It is a striking fact, however, that of these 76 cases of softening or suppuration, 53 occurred in the first year, while late suppuration was noted only once in the third, fourth and fifth year respectively.

It would seem, therefore, that if the process remains chronic in the epididymis for a year or two, it is not very likely to break down. I have seen the nodule become swollen and threatening to break down in later years; but it has always either settled back into its chronic condition or been removed before softening took place.

On the other hand, no suppuration occurred in 29 cases watched for more than one year. Fourteen of these were followed less than four years, 9 from four to nine years, and 6 respectively ten, eleven (2 cases), twelve (2 cases) and sixteen years.

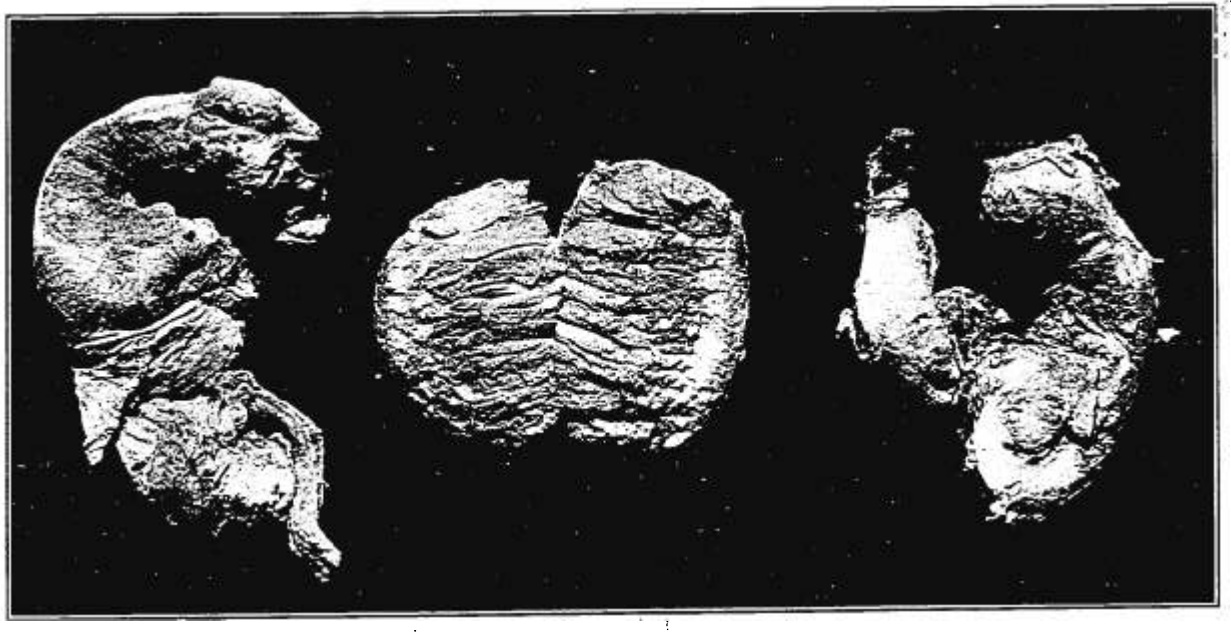
Condition of the Opposite Testicle.—Here is perhaps the most important point of all. Many patients permit one testicle to be removed in the hope that the disease is confined to this one organ, and may be amputated. That this hope is utterly vain, and that relapse upon the opposite side almost inevitably occurs—be the operation ever so slight or ever so radical—I hope to show in discussing the various operative procedures.

For the present let me summarize the 87 cases in which it is definitely recorded that the opposite testicle was or was not affected. Fifty-three so relapsed; 34 had not done so when last seen.

The following table shows the details:

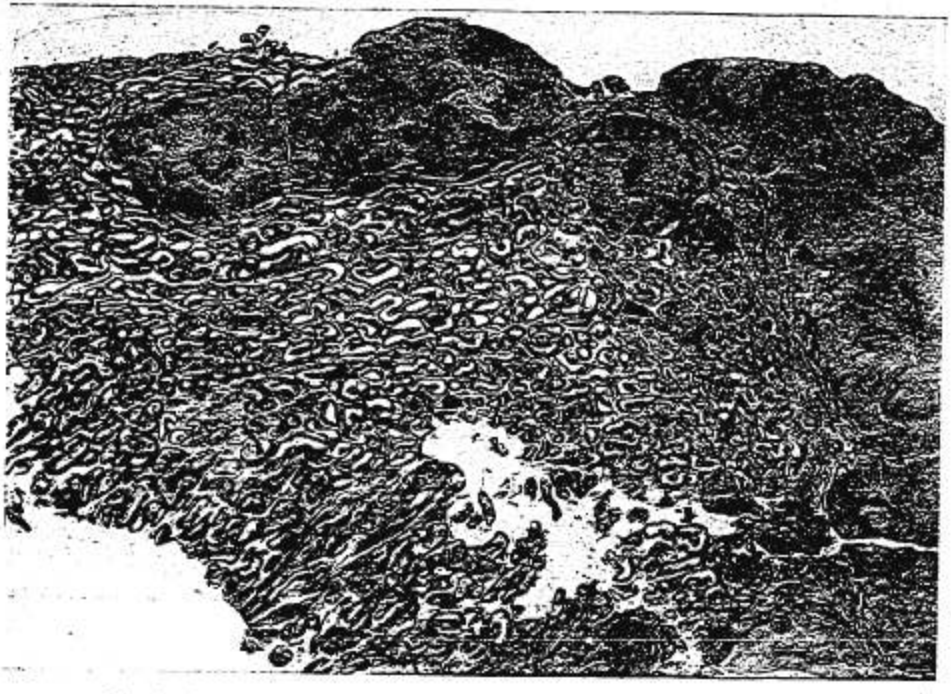
	Relapse on opposite side.	
	Yes	No
Shortly	34	14
1 year	12	5
2 years	2	2
3 years	2	3
4 years	1	0
5 years	1	3
7 years	0	1
8 years	0	1
9 years	0	1
10 years	1	1
14 years	0	1
16 years	0	1
27 years	0	1
Totals	53	34

FIG. 1.



Right epididymectomy—left orchidectomy. On the right side the vas is manifestly enlarged; on the left it seems normal. The testis was removed because it was feared the blood supply had been cut off in removing the epididymis. Many small tubercles may be seen in the testis. Under ordinary circumstances, however, such a gland as this might be left in situ, with the expectation that it would heal.

FIG. 2.



Invasion of the testis by tubercles. (This specimen was taken from the gland pictured in Fig. 1.)

It is notable that, in practically every case the relapse occurred within four years, hence, if the opposite testicle escapes infection five years, it is pretty well out of danger. The 7 cases showing no infection of the opposite testicle at intervals varying from seven to twenty-seven years will doubtless remain unilateral, and they probably represent from 10 per cent. or 20 per cent. of the total number.

Subsequent Lesions Elsewhere.—Extension of the tuberculosis from the kidney to the genital organs occurred in 11 cases. In one of these the kidney was involved thirteen years before the testicle was attacked; in another seven years; in 2 cases three years, once by two years, and twice by one year. In the remaining 4 cases the kidney was known to be involved only a short while before the testicle.

The converse of the picture—extension of genital tuberculosis to the kidney—took place 9 times; one in each year from the first to the eighth, and once in the sixteenth year.

Extension beyond the genito-urinary tract occurred 11 times, as already stated; and in 4 of these there had been previous tuberculosis elsewhere. The progress in these 4 cases was as follows: 1. Ancient hip disease; testis at forty-three years; lung a few months thereafter. 2. Humerus, ancient; testis at twenty-six years; then opposite testicle; then glands in the neck at twenty-seven years; lung and kidney at thirty-one years; and died at thirty-two of tubercular meningitis. 3. Ancient Pott's disease; left testis at forty-seven; rib at forty-eight; right testis and right kidney at fifty; teno-synovitis at fifty-four; and rib at sixty-two. 4. Elbow, toes, fingers and rib at twenty-one; both testicles at twenty-two; glands in the groin at twenty-four.

No statistics can be derived from these cases; they simply illustrate the uncertainty and irregularity of tuberculosis.

*Prognosis of Cases Not Operated On.**—One would suppose that the prognosis of suppurating cases was far worse than of those that did not suppurate. Practically speaking, however,

* In some of these the first testis was operated upon: calculation is then made from the second.

this does not prove to be the case; for the pain and fever of suppuration, and the disgusting sinus that follows rupture of the abscess, lead the patient to take so much better care of himself that, on the average, such cases seem to do better than those who do not suppurate.

I have followed for more than a year 35 cases that did not suppurate and 34 that did (1 duplicate). Of the suppurating cases: 18 were still active when last seen, 2 of them within three years, 2 four, 3 five, and 1 six years. Sixteen either burst or were incised, suppurating for a certain number of months thereafter, and then were seemingly cured. Three such apparent cures were followed but one year; 1 for two years; 1 for four; 1 for five (bilateral); 1 for six; 1 for seven; 1 for eight; 2 for ten (1 bilateral); 1 for twelve (bilateral); 1 for thirteen *; 1 for twenty-five (bilateral); 1 for twenty-seven years. Yet, to prove that, no matter how long these patients remain well they are not absolutely guaranteed against relapse, in 1 case suppuration followed gonorrhœa fourteen years after the apparent healing.

That thirty per cent. of cures, watched for more than three years, should follow suppuration in the tubercular testis is most surprising, and I fear would not be verified if the cases were more numerous. Yet, on the other hand, those cases which did not suppurate were forever smouldering or advancing. Single cases showed irregular activity as late as five, six, eight and ten years after the onset; while apparent cures were observed at five, eight, nine, twelve * and sixteen years,—only 14 per cent.

The Longest Cases.—In order to clear the horizon a little, I shall briefly recite the history of the 10 cases observed for ten or more years after the onset of tuberculosis of the testicle.

I.—At thirty-six years the right testicle suppurated, and the abscess burst and healed after a certain number of months. The patient remained well ten years later.

II.—At twenty-five the right testicle was acutely inflamed

* Opposite testes of one patient.

during a gonorrhœa. It did not suppurate; the acute inflammation subsided, but left lumps in the epididymis. Five years later there was prostatic abscess, and five years after that the left testis and vesicle were acutely inflamed. The testis did not suppurate within the year during which the case was followed.

III.—At thirty-three years both testicles enlarged spontaneously, and suppurated. They then remained quiet for ten years, when he was again seen with pulmonary tuberculosis, diabetes, and a slight exacerbation, lasting only a few months, in the right testicle.

IV.—This is the case already mentioned, who had double suppurative epididymitis at twenty-one, and was said to be well and have two children twelve years later.

V.—Left gonorrhœal epididymitis at the age of twenty-one, followed by suppuration and sinus. A year later the right testicle became involved but did not suppurative, and two years after that, a prostatic focus became active. When last seen, thirteen years after the onset of his trouble, the testicles were well but the tubercular cystitis and prostatitis continued active.

VI.—Pott's disease in youth; at the age of forty-seven, the left testicle enlarged spontaneously; suppurated within two months, and was cured by epididymectomy one month later. In the following year, abscess due to necrosis of a rib was scraped, and two years after that the right testicle enlarged and was cured by epididymectomy. About this time, acute and severe suppuration in the right kidney occurred; but no operation was performed; and the patient, going for several months every year to California and various other health resorts, improved very greatly in general condition; until, at the age of fifty-four, seven years after the onset of his testicular trouble, he returned with tubercular teno-synovitis of the flexor tendons of the right wrist. This was drained and injected with iodoform emulsion for several months. During all this time he had no symptoms from his genital organs. The testicles were entirely quiescent, but the right kidney was actively suppurating, and there was probably some involvement on the opposite side. Six years later, thirteen years from the beginning of his trouble, I hear that the rib has suppurated and been incised again.

VII.—At eighteen, acute, spontaneous inflammation of the left testicle, soon followed by suppuration and fistula, and ulti-

mately healing. It remained sound for fourteen years, when it relapsed in the course of a chronic gonorrhœa (there was some suspicion of prostatic tuberculosis in this case).

VIII.—Left testicle spontaneously and chronically involved at the age of twenty-one. It so remained and, sixteen years later, tuberculosis of the left kidney developed.

IX.—At the age of twenty, the right testicle and, shortly after, the left spontaneously enlarged, suppurated, discharged and healed. When seen twenty-five years later both were lumpy and dormant; there was a nodule also in the vas on the left side.

X.—Pulmonary tuberculosis in early youth. At the age of twenty-eight, the right testicle spontaneously enlarged, suppurated, and discharged. The epididymis was quiet and nodular when he was seen twenty-seven years later.

These case reports are little less than shocking in their optimism: and, were there but one or two of them, I should gladly put them down to mistaken diagnosis. For it seems incredible that so large a proportion as 10 per cent. of the cases on our books should have lived at least ten years from the involvement of the testicle; and still more incredible that, of these 10, no less than 4 were, seemingly, absolutely well of all tuberculosis—and this without any operation.* Such statistics make one very hopeful about tuberculosis of the testicle, though they by no means remove the uncertainty of prognosis in any given case. Yet I can positively assert that some of my most promising cases now are those who at one time looked absolutely hopeless.

One patient, for instance, summoned me after having lost one testis by "guaranteed" amputation, and with its fellow in a sea of pus. His physician told the family he could not live three months; but I drained his abscess and sent him to Liberty. A year later he returned healed, but with much albumin and many casts persisting in the urine. He took part in one of our most dramatic fires of recent years; spent two years in Western Pennsylvania; returned to New York; got himself insured in the New York Life; and is now recovering from his first clap. His tuberculosis remains quiescent.

* Except Case VI.

Mortality.—I can record no mortality from tubercular testicle. One patient died of phthisis (six months), one of tubercular meningitis (six years), and one of pelvic abscess after operation (six years); but none of these deaths is directly attributable to the testicle.

Diagnosis.—The three conditions with which the tubercular testicle is likely to be confused are simple epididymitis, syphilis, and neoplasm. The means for distinguishing these three conditions are the following:

1. Aspiration of hydrocele or drainage of abscess in order that the lesions of testicle and epididymis may be accurately palpated.

2. Familiarity with the clinical aspect of tuberculosis of the testicle,—the little, rounded nodules; the diffuse infiltration of the epididymis; the acute epididymo-orchitis; the frequency of hydrocele and abscess; the ever-present sensitiveness to pressure.

3. Tubercular family history, upon which too much weight must not be placed, and tubercular personal history, which is often an important aid in diagnosis.

4. Evidences of tuberculosis in the internal genital organs, as evinced by active tubercular lesions, chronic tubercular nodules, or a slight haze in the urine and some pus in the prostate (which may be expressed by massage).

5. The diagnosis can be absolutely clinched by discovery of the tubercle bacillus in the urine, in the pus massaged from prostate, or in the contents of hydrocele fluid or abscess.

6. Still further confirmation may be obtained by operation..

Yet that these signs may all fail I am sure from several cases in which the careful and close observation of months failed to distinguish absolutely between tuberculosis and other lesions.

I will cite only 3 cases, in 1 of which simple inflammation simulated tuberculosis; in another of which I advised the removal of a syphilitic testicle; and, in the last of which a neoplasm of the testicle itself was very misleading.

I.—(Observed by Dr. Keyes, Sr.).—The patient is thirty-nine years of age. He complains that, three months ago, having a little uneasiness in the perineum, he consulted a physician, who passed a sound and a searcher.

After this there was for the first time a slight urethral discharge; for the cure of which the physician injected nitrate of silver into the deep urethra. After six days of this treatment the patient took to his bed with acute cystitis and left epididymitis. He was in bed for three weeks, and then the testicle suppurated. When first seen by Dr. Keyes there was an abscess at the tail of the epididymis which he opened. The urine was acid, purulent, and dense, and contained spermatozoa and albumin. Urination urgent, once at night and six times by day, and accompanied by terminal spasm. The patient had lost 18 pounds.

He was at first put upon internal medication, and then treated by instillations of thallin and sulphate of copper. He was much improved in a month, and left town, to return again in two years with a little pus in the urine but the testicle entirely well.

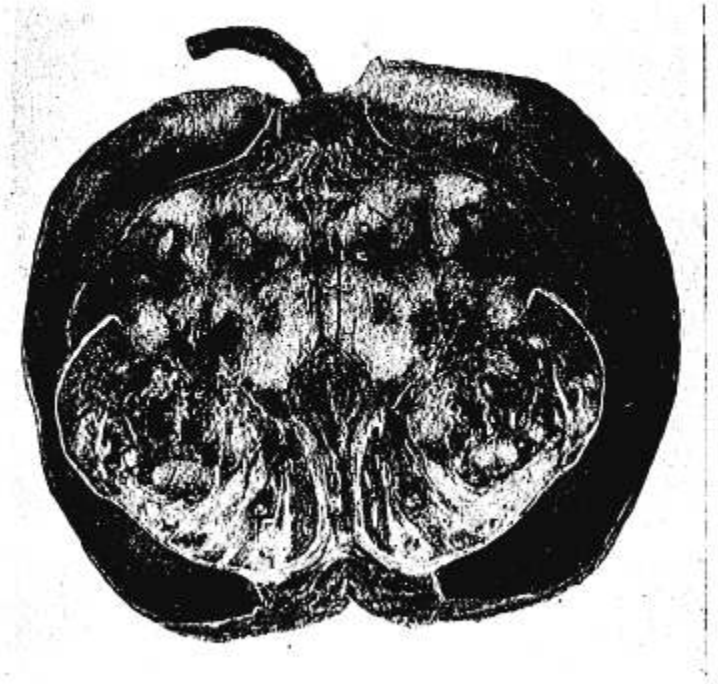
Two years later—in 1895—the urine is absolutely normal and sparkling, and palpation of the internal and external genitals reveals absolutely nothing.

This is one type of pseudo-tubercular, simple epididymitis. In another type, the epididymis remains lumpy for a long time after the first involvement and, occasionally, flares up. Rest, tonics, stopping urethral treatment, elevation of the testicle, and application of ichthyol plaster to it relieve this condition and establish the diagnosis.

II.—February 18, 1905. Patient is thirty-four years of age. Gives no previous venereal history, except a doubtful story of a sore on the frenum in June, 1903, which lasted but a week. He immediately began mercurial treatment and has continued it ever since. There has been some vague eruption on the genitals, some fleeting mouth lesions. A letter to the physician who treated him evokes a non-committal reply.

His present complaint is a nodule about one centimetre in diameter, with little irregularities in its surface; but generally rounded, embedded in the top of the right epididymis and encroaching a little upon the testicle. The lump is insensitive

FIG. 3.



Carcinoma of testicle, resembling tuberculosis. (Case of Dr. G. D. Stewart.)

and was discovered by accident. Vesicles both moderately distended; right half of prostate thicker than the left, but not lumpy; urine entirely normal.

He states that the lump appeared a year ago and was quite painful for a little while, since which it has been entirely painless and has rather diminished in size. He is engaged to be married.

He was instructed to stop his mercury and not to marry; to apply 10 per cent. guaiacol to the testicle; and to take 10 minims of creosotal in emulsion three or four times a day. After six weeks of this treatment the lump distinctly diminished, and I did not see him again until September 20, 1905; when he returned married and with round lumps of all sizes throughout the testis and epididymis, with adhesions within the vaginalis which could be felt to creak, but with no change either in his general health or in the normal condition of the urine, prostate, the vesicles, or the other testicle. The diagnosis of tuberculosis was, accordingly, made; the testicle was removed at Washington, and proved to be syphilitic.

I was misled in this case by the typical, rounded lumps, by the onset in the epididymis, and by the early tenderness. But its absolute insensitiveness under my fingers, and the absence of any sign of tuberculosis of the internal genitals, should have warned me that it was not tuberculosis.

III.—The third case was that of a physician thirty-odd years of age, a patient of Dr. Geo. D. Stewart. He stated that, for many years, he had had slight enlargement of the left testicle. There was a little hydrocele and the entire testis and epididymis seemed full of elastic nodules; no lesions were discovered elsewhere in the body. He was put on a trial course of mixed treatment, but frankly advised that the condition looked like neoplasm.

The treatment did no good. He consulted a number of other physicians, all of whom made a diagnosis of tuberculosis; but, as the lesion was beginning to be active, he submitted to operation, and the organ (Fig. 3) was removed by Dr. Stewart at St. Vincent's Hospital. Pathological examination revealed carcinoma.

Hygienic Treatment.—The hygienic treatment of tuberculosis is as efficient in tubercular testis as in phthisis. It is the foundation of every cure. I will make only two remarks concerning it.

1. It must be aided by intelligent surgical treatment.

2. Many patients do surprisingly well in and about New York without change of climate.

I am doubly surprised at the good results of my cases considering how unfaithful they have been to many of the fundamental rules of hygiene.

The most remarkable patient I ever saw was a dentist, twenty-one years of age, with very acute tuberculosis of the left testis. I cured his hydrocele by carbolic injection at the onset of the disease and, thereafter, he took heavy doses of creosote for eighteen months; but has, in the nine years since that time, hardly left his work a day. He is pale as a hospital interne; he works ten hours a day; he overdoes himself sexually; he went through an attack of gonorrhœa last summer; yet his testis got well in three years and has so remained.

SURGICAL TREATMENT.—Let us first discuss the treatment of hydrocele and of abscess, for on these we can all agree.

Hydrocele.—Small hydroceles need not be disturbed. They usually disappear with the subsidence of the acute process. Large ones may be tapped by way of palliation or may form an excuse for radical operation.

I was surprised, in the case just cited, to see a hydrocele containing 12 ounces and overlying an active tubercular testis almost as big as my fist, refill after two tappings, and yet disappear promptly and permanently after injection of pure carbolic acid. I was still more surprised to see the testicle shrink from that time on, though up to then it had been growing quite rapidly.

My father and Dr. Chetwood have each had a similar success with carbolic injection, though without any obvious effect upon the testis. I should, therefore, suggest injection of carbolic acid into the tunica vaginalis as a possible cure for certain cases of tubercular hydrocele. It will not harm the testis; in certain hyperacute cases it may benefit it.

Abscess and Fistula.—Abscesses must be incised and drained; fistulæ kept freely open. They may be irrigated with

peroxid of hydrogen and injected with iodoform emulsion. But, if the patient must choose between local treatment in the city and hygiene in the country, let him, without hesitation, desert the surgeon and lean upon Nature.

Unless the testis is riddled with abscesses, I consider it wise not to remove it while acute suppuration is going on. Incise, drain, wait for the acute inflammation to subside, and, in a surprisingly large proportion of cases, the whole tubercular mass will shed spontaneously, and you will find that Nature has cured the lesion. On the other hand, if things progress ill, you may, at any time, attempt a radical operation.

Choice of Radical Operation.—These remarks are practical, and, inasmuch as I have never employed ligation of the spermatic cord or extirpation of the seminal vesicles or certain other procedures advised for the cure of tuberculosis of the testicle, I shall not discuss them.

The three methods I have employed, or seen employed, are erasion of the active focus, epididymectomy, and castration. Each procedure has its eminent advocates, and, actually, I have seen so few of any of these operations, that it might be more prudent to withhold my views. But my feelings upon the subject are so intense that they will not be repressed.

The results of operations are the following:

Erasion.—1 bilateral, not followed; 1 single, unrelieved; and 1 single relapsed in six months. Such results are unmitigatedly bad.

Orchidectomy.—The testis and more or less of the vas was removed from 13 patients: from 2 of them the opposite testicle was subsequently removed. Inasmuch as orchidectomy is usually done on the plea that the disease is localized in the testis and may be extirpated with it, 10 of these operations* were done upon patients who, at the time, had but one swollen testicle; while the other 5 were called for by the total destruction of the testis by suppuration or caseation.

Of the 10 patients in whom but one testicle was involved at the time of operation, 3 relapsed on the opposite side within

*None of them performed in our office.

one year; 2 after one year; and 2 more after two years, making 7 relapses in all; while of the remaining 3 in whom the opposite testis was not known to be involved, 2 were followed less than a year, and 1 was followed two years.

Further evidence of the futility of attempting amputation of the tuberculosis is the involvement of other organs within two years of unilateral orchidectomy. One case of urethral abscess, 1 of vesicular abscess, 2 of tubercular kidney, 1 of acute prostatitis, and 1 of tubercular inguinal adenitis.

Such results simply confirm the belief that, whether apparently localized in the testicle or elsewhere in the body, tuberculosis is always a disseminated infection which can not be amputated.

Contemplate for a moment the plight of a patient who has gaily sacrificed one testicle upon the assurance of thereby saving its fellow. The relapse upon the opposite side plunges him into intense and black despair. This reason alone impels me to prefer some more conservative operation.

Epididymectomy.—I have record of 13 epididymectomies upon 8 patients.* One single operation was followed by suppuration, prompt relapse in the opposite epididymis and removal of the testis first involved. Its fellow has remained chronic and quiescent three years.

Of the double epididymectomies, 2 were consecutive after relapses respectively in three months and in three years. One double partial epididymectomy—complete excision of quiescent nodules in the tail of both epididymes. Two epididymectomies on one side and orchidectomy on the other, the testicle being removed because it seemed impossible to save it. Two double, simultaneous epididymectomies.

Of these 7 patients, 1 died from pelvic abscess arising from the end of the vas deferens that had been torn off high up inside the pelvis. The others all recovered from the operation and, though one of them has still a slight fistula, three years after operation on one side (the fellow is healed), the other 6 are entirely well as to their testicles, and the cures

* Operations by Keyes Sr., Chetwood, and Keyes Jr.

have been followed for one year (3 cases), three years, and thirteen years.

These results are sufficiently good to justify continued adherence to this operation. Yet some little skill is required in doing it. The death from pelvic suppuration has warned me of the danger of tearing the vas out of the pelvis: it should be cut off at the upper end of the incision and left protruding from the skin, in order that any suppuration from it may be freely discharged.

The easiest route to the epididymis is through the tunica vaginalis. In shelling it out, one should stick close to it, in order to spare the blood supply of the testicle; and, in order to save the testicle, I believe it perfectly justifiable to cut through and leave behind manifestly tubercular tissue.

One of the arguments of those who condemn epididymectomy is that it always leaves some tuberculosis in the testis. I do not doubt the truth of this statement. Indeed, I have deliberately left a testicle full of tubercles in 2 of these cases and seen it subside and give no further trouble. Some of the results have been peculiarly brilliant. Two of them scarcely show the least departure from a normal appearance, the scar of the epididymectomy having quite accurately reproduced the form of the epididymis itself.

My choice of operation is, therefore, always epididymectomy, unless the testicle is too far gone to be saved: and I am willing for the moral effect upon the patient, to risk leaving an infiltrated testicle, believing that it can fight down the inflammation after the removal of its inflamed epididymis.

Time for Operation.—I began to treat these cases ten years ago under extremely conservative influences. My father's rule has been never to touch the epididymis until it threatens suppuration; then to excise it; or to drain first and excise later. Yet, in view of the grave frequency of relapse in the opposite epididymis, the apparent frequency of sterility at the time the first epididymis is involved, and the excellent effect upon the general health and upon tuberculosis of the prostate and vesicles, which I have several times seen result

from the removal of an apparently quiescent, chronic, tubercular epididymis, I am inclined at present to advise the following procedure:

If a patient appears with acute tubercular, epididymo-orchitis, treat him expectantly until the lesion suppurates or becomes subacute. If it suppurates, drain, or, in exceptional instances, remove the whole testis. When it settles down into chronic epididymitis, or if it begins as such, examine the spermatic fluid; and, if this, on several successive examinations, shows no spermatozoa, excise both the tubercular epididymis and its unaffected fellow. For this will do no harm and will prevent relapse upon the opposite side. Moreover, it will have a doubly soothing effect upon the prostatic or vesicular tuberculosis; for removal of the epididymis produces, in a less degree, the beneficial effect upon tuberculosis of the internal genitals that nephrectomy has upon tuberculosis of the ureter. If spermatozoa are found in the semen, the normal testis of course may not be touched.

This early prophylactic operation should reduce the importance of testicular tuberculosis to almost nil, and should prevent many of those tubercular outbreaks in other organs which seem to be fed from active or latent foci of the disease in the epididymis. But I foresee that few patients will submit to it.

CONCLUSIONS.

1. Testicular tuberculosis is clinically never an isolated lesion. It is only one feature of a general genital tuberculosis, for

2. Sterility is frequent if not constant, at the time the first testis is invaded.

3. There is evidence at this time of inflammation of the internal genitals.

4. Relapses in the opposite testicle occurs within a few years, in eight or nine out of ten cases, and

5. Such relapse is in no wise postponed by early removal of the diseased testis.

6. Moreover, though suppuration seems often to result in permanent cure of the local process, and

7. Though a chronic focus several years old is likely never to suppurate, yet

8. In no case can one feel certain of a real cure unless the tubercular epididymitis has been removed. Now

9. The demoralizing effect of epididymectomy is not to be compared with that of castration, and

10. Slight tuberculosis of the testis may be depended upon to heal spontaneously after removal of the epididymis.

11. Hence epididymectomy is the radical operation of choice, unless there is hyperacute generalized epididymo-orchitis, or unless the testis is destroyed by suppuration.

12. This operation has a beneficial effect upon the general health and upon tuberculosis of the internal genitals.

13. It should, therefore, be performed early in the disease. This in spite of the fact that

14. Tuberculosis of the testis is often but an insignificant part of a generalized progressive tuberculosis, or

15. Is for many years the only active lesion of the disease.

16. If the patient is sterile, it would probably be wise to remove both epididymes, even though only one side is diseased.